This evening a banquet will be given by Pembroke College, at which many of the distinguished guests and older colleagues of Sir George will be entertained in the hall of the College, which he entered as a freshman in 1837. During the evening the University will entertain about one thousand visitors and residents at a conversazione in the Fitzwilliam Museum, an interesting feature of which will be the presentation by Lord Kelvin of two busts, executed by Mr. Hamo Thorneycroft, of Sir George Stokes—one to the University, and the other to Pembroke College.

On Friday at 11 a.m., in the Senate House, the addresses of congratulation will be presented to the Vice-Chancellor, and handed by him to Sir George Stokes. Some sixty-five different institutions from all parts of the world will be represented. At 7 o'clock the delegates and their hosts will be entertained at luncheon by the Vice-Chancellor at Downing College, and at 2.45 a second congregation will be held in the Senate House, at which the Chancellor, the Duke of Devonshire, will preside. At this congregation, the honorary degree of Sc.D. will be conferred on Profs. A. Cornu and J. G. Darboux of Paris, on Prof. A. A. Michelson of Chicago, on Prof. M. G. Mittag-Leffler of Stockholm, on Prof. G. H. Quincke of Heidelberg, and on Prof. W. Voigt of Göttingen. A gold medal struck in honour of the occasion will be presented to Sir George Stokes by the Chancellor, and replicas will be sent to all the Universities and learned societies who are represented at the Jubilee.

Later in the afternoon a garden party will be held in the grounds of Pembroke College, and in the evening the University will entertain the delegates and guests at a dinner given in the hall of Trinity College. The Chancellor will take the chair, and amongst other distinguished guests who have accepted invitations may be mentioned the Lord Lieutenant of Cambridgeshire, the Bishop of Ely, the President of the Royal Society, the Vice-Chancellors of the Universities of Oxford, Aberdeen, and London, the Earl of Rosse, Lord Kelvin, Lord Rayleigh, Lord Blythswood, the Provost of Trinity College, Dublin, Monsignor Molloy, and many others.

There will be a special meeting of the Cambridge Philosophical Society, at which some of the foreign members will, it is expected, read papers. This will probably take place on Monday, June 5. Many of the guests will leave Cambridge for London to take part in the anniversary celebrations of the Royal Institution.

NOTES.

A MEETING for discussion will be held at the Royal Society on Thursday next, June 8. The subject to be discussed—preventive inoculation—will be introduced by M. Haffkine.

ARRANGEMENTS for the sixty-ninth annual meeting of the British Association at Dover, in September next, are making satisfactory progress. The local committees are actively at work, and in response to the appeal of the hospitality committees over 1500*l.* has already been subscribed. As previously announced, the president of the meeting will be Prof. Michael Foster, and the presidents of the various sections are to be:—Mathematical and physical science, Prof. J. H. Poynting; chemistry, Mr. Horace T. Brown; geology, Sir Archibald Geikie; zoology, Mr. Adam Sedgwick; geography, Sir John Murray, K.C.B.; economical science, Mr. Henry Higgs; mechanical science, Sir William H. White; anthropology, Mr. C. H. Read; physiology, Mr. J. N. Langley; botany, Sir George King, K.C.I.E. The first general meeting will be held at the Connaught Hall on Wednesday, September 13, at 8 p.m. precisely, when Prof. Michael Foster will deliver an address; on Thursday evening, September 14, at 8 30 p.m., there will be a soirée in the School of Art; on Friday evening, September 15, at 8.30 p.m., a discourse will be delivered by Prof. Charles Richet, on "La vibration nerveuse"; on Monday evening, September 18, at 8.30 p.m., a discourse will be delivered by Prof. Fleming, F.R.S., on "The Centenary of the Electric Current"; on Tuesday evening, September 19, at 8.30 p.m., there will be a soirée in the School of Art; on Wednesday, September 20, the concluding general meeting will be held at 2.30 p.m. Excursions to places of interest in the neighbourhood of Dover and to the continent will be made on Thursday, September 21. Members of the Association Française pour l'Avancement des Sciences will visit Dover on Saturday, September 16. Members of the British Association are invited to visit Boulogne on Thursday, September 21.

THE following naturalists have been elected foreign members of the Linnean Society:—M. Adrien Franchet of Paris, Prof. Emil Christian Hansen of Copenhagen, Dr. Seiitsiro Ikeno of the Imperial University, Tokyo; Prof. Eduard von Martens of Berlin, and Prof. Georg Ossian Sars of Christiania.

THE gold medal of the Linnean Society, which was presented at the anniversary meeting on May 24, has this year been awarded to Mr. John Gilbert Baker, of Kew, in recognition of his important contributions to botanical science. Amongst these may be mentioned his *Synopsis Filicum*, his monographs of the daffodils and roses, handbooks on the *Amaryllideae*, *Irideae*, *Bromeliceae*, and the fern allies; three volumes on the *Compositae* in Martins's "Flora Brasiliensis," and several papers on Malagasy botany, the Flora of Mauritius and the Seychelles, the Bulbous Flora of the Cape, and the *Leguminosae* of British India, "Flora of the English Lake Country," and numerous papers communicated to the *Journal* of the Linnean Society, the *Journal of Botany*, and other periodicals.

AT the annual meeting of the Victoria Institute, to be held on June 19, an address will be delivered by Sir Richard Temple.

THE anniversary meeting of the Royal Geographical Society will be held on Monday next, June 5. The Society's annual conversazione will be held in the Natural History Museum on Wednesday, June 7.

THERE will be no Friday evening discourse at the Royal Institution to-morrow (June 2), as Mr. H. G. Wells, who was to lecture on "The Discovery of the Future," is in too weak a state of health to do so.

AT the recent annual meeting of the American Academy of Art and Sciences, Mr. Alexander Agassiz was elected president of the Academy. The Rumford medal was awarded to Mr. Charles F. Brush, of Cleveland, for "the practical development of electrical arc lighting."

A REUTER telegram dated Helsingfors, May 26, says:—"The collected pieces of the aerolite which fell at Bjurholm some time ago have been sent here, and placed in the geological museum. The largest piece is said to weigh 206 Russian pounds, while all the parts together weigh 850 lbs."

DR. L. A. BAUER has resigned his position as assistant professor of mathematics and mathematical physics at the University of Cincinnati, in order to accept the position of chief of the newly-formed division of terrestrial magnetism of the United States Coast and Geodetic Survey. To this division has been assigned the magnetic survey of the United States and the countries under its jurisdiction, and the establishment of magnetic observatories. Dr. Bauer has also been appointed lecturer in

terrestrial magnetism at the Johns Hopkins University. The journal, *Terrestrial Magnetism and Atmospheric Electricity*, beginning with the June number, will be issued hereafter from the Johns Hopkins University Press, Dr. Bauer continuing as editor-in-chief.

ON the evening of May 13 a meeting of the New York Electrical Society was held at Madison Square Garden, where an Electrical Exhibition is now going on, to celebrate the centennial of the discovery of the electric battery by Alessandro Volta. Mr. Edison sent a letter expressing his admiration of Volta's investigations and researches, and associating himself with the fraternal messages which were sent to the Italian electrical society and to the Electrical Exhibition at Como, the birthplace of both Volta and the voltaic cell. The New York *Electrical Review* states the following message was cabled to the Italian Premier :—"The electricians of America, celebrating the Volta Centennial in New York, extend heartiest congratulations to the fellow-workers in Italy, and, in doing so, desire to express the hope that the work of such pioneers as Galvani, Volta, Pacinetti and Ferraris may be renewed and repeated by other members of the Italian race in the century which is now dawning. America owes a deep debt of gratitude to Italy for electrical discoveries, which have done so much to abridge distance and add to the welfare of mankind. Please communicate these sentiments to King Humbert in the name of the New York Electrical Society.—Gano S. Dunn, President."

THE Berlin correspondent of the *Times* states that the committee which is organising the German Antarctic expedition has decided that the expedition is to be composed of one ship only. The vessel, which is to be built entirely of wood, is to be laid down this autumn. The expedition is to be ready to start in the autumn of 1901, and is to be away two years altogether. After touching at the Cape, the expedition is to make for the Antarctic continent south of the Kerguelen Islands, and there establish a scientific station at some point suitable for wintering. A pack of Siberian dogs is to be taken, and dashes will be made on sledges towards the South Pole and the south magnetic pole. Meteorological observations will also be made from a captive balloon. After the breaking up of their winter quarters, the expedition will attempt to make as complete a survey as possible of the coast line of the Antarctic continent. As already announced in these columns, the leader of the expedition is to be Dr. von Drygalski, who conducted the German exploration of Greenland in the years 1891–93. The committee expresses great satisfaction that the English Antarctic expedition has at last been definitely decided on, and points out that the value of the two sets of meteorological observations will be greatly enhanced by their being carried on simultaneously.

AN Industrial Exhibition organised by the Artist Club was opened at the Crystal Palace on Tuesday by the Duke and Duchess of Connaught. The exhibition has been furnished by about one hundred leading British manufacturers, and the element of competition has been eliminated by only including one set of exhibits of any particular industry. Engineering appliances of various kinds are prominent. Railway and steamship interests are also well represented. Refrigerating processes employed in the Colonial meat trade are shown in operation. There is also an interesting display of printing machinery at work, and of type-setting by Linotype machines. Electricity figures in the exhibition, and a number of novel devices of various kinds are to be seen. As an example of quick work in photography, it is worth mention that the opening ceremony was photographed and projected upon the screen by the Biograph and Mutoscope Company before the Royal party left the Crystal Palace three hours later.

AT the annual general meeting of the Institution of Electrical Engineers, held on Thursday last, the announcement was made that the premiums for papers read during the session 1898–99 had been awarded by the Council as follows :—The "Institution Premium," value 25*l.*, to Mr. P. V. McMahon, for his paper on "Electric Locomotives in Practice, and Tractive Resistance in Tunnels, and Notes on Locomotive Design"; the "Paris Electrical Exhibition Premium," value raised to 20*l.*, to Mr. W. Duddell and Mr. E. W. Marchant, for their paper, "Experiments on Alternate Current Arcs by aid of Oscillographs"; two "Fahie Premiums," none having been awarded in 1898, of 10*l.* each, one to Prof. O. Lodge, F.R.S., and one to Mr. G. Marconi, for their papers entitled respectively "Improvements in Magnetic Space Telegraphy" and "Wireless Telegraphy"; two extra premiums of 10*l.* each, one to Mrs. Ayrton for her paper on "The Hissing of the Electric Arc," the other to Mr. J. Elton Young, for his paper on "Capacity Measurements of Long Submarine Cables"; the Senior "Students' Premium," value 10*l.*, to Mr. W. G. Royal-Dawson, student, for his paper on "Alternating Currents of very High Frequency"; the second "Students' Premium," increased in value to 10*l.*, to Messrs. M. R. Gardner and W. P. Howgrave Graham, for their paper on "The Synchronising of Alternators"; the third "Students' Premium," value 5*l.*, to Mr. Leonard Wilson, student, for his paper on "The Effect of Governors on the Parallel Running of Alternators"; extra "Students' Premium," value 4*l.*, to Mr. L. R. Morshead, for his paper on "Enclosed Arc Lamps," and an extra "Students' Premium," value 3*l.*, to Mr. H. M. Dowsett, student, for his paper on "Electricity Meters"; the Salomons Scholarship for 1899-1900, value 50*l.*, was awarded to Mr. H. J. Thomson, a student of the Central Technical College.

THE hydrographical surveys made in H.M. surveying vessels during the year 1898, and referred to in the recent report by the Hydrographer of the Admiralty, led to a number of important results. Resurveys of parts of the Thames and Medway show that remarkable changes have taken place. An examination of the Shingles patch in the Duke of Edinburgh Channel has shown that this patch now has 15 feet of water on it, and its steady growth since 1882 has reduced the width of the Duke of Edinburgh Channel, at present the principal passage into the Thames for heavy vessels, from 1½ miles to about ½ a mile. The total obliteration of the passage, which seems by no means impossible, would entail a long circuit at the time of low water to large vessels to or from the Thames and Medway, but the operations of nature in this estuary are far too great to be controlled by works. A resurvey was made of the Middle Swin. This passage way, the main route for the enormous trade between London and the north, has of late years much contracted and shoaled, and gives considerable anxiety to the Trinity House, as, if necessary to alter the route, many changes in lights and buoys would be necessary to make another passage safe. There is now very little more than 19 feet on the bar at low water.

A SERIES of observations with a deep-sea current meter, carried out in the large Strait of Bab-el-Mandeb by the officers of H.M. surveying vessel *Stork*, are referred to by the Hydrographer in his report. The observations, which are valuable as bearing on the system of circulation in the oceans, have been published in a report on the under-currents of the Straits of Bab-el-Mandeb; but the broad result may be briefly stated. There was a permanent current on the surface setting *into* the Red Sea of about 1½ knots an hour. There was at 105 fathoms depth a permanent current of about the same velocity setting *outwards*. The tidal stream was about 1¼ knots at its maximum, and flowed for about twelve hours each way, as might

be expected from the fact that in this locality there is practically only one tide in the day. This tidal stream prevails to the bottom with variations of strength. Somewhere about 75 fathoms below the surface is the dividing line between the two permanent currents, but there were not sufficient observations to determine the exact depth with any precision.

IN the current number of the *Psychological Review*, Prof. Wesley Mills points out that in investigating the psychology of animals, care must be taken to observe them under conditions as nearly approaching their normal surroundings as possible. He maintains that to place a cat in a box, as has been done, and then to expect it to act naturally, is about as reasonable as to enclose a living man in a coffin, lower him, against his will, into the earth, and attempt to deduce normal psychology from his conduct. Besides, the highest animals should be compared with the lowest human beings before maintaining that there is an essential difference between the respective mental lives of animals and the human race.

A SERIES of instructive experiments on young chicks have been made by Dr. Edward Thorndike. About sixty chicks of all ages were studied, and some remarkable instances of instinctive muscular coordination and emotional reaction were observed. A four days' chick will jump down a distance eight times his own height without hurting himself. Thrown into a pond, he will make straight for the shore, while an adult hen would float about aimlessly. For the first four or five days there is no fear of strange objects or sounds, such as the sight of a man or a hawk's cry. Instinct does not always lead to the same reaction. A loud sound may make one chick run, another crouch, another give the danger call, and another do nothing whatever.

AT Montgomery, Alabama, the daily forecasts of the U.S. Weather Bureau are shown on all street letter-boxes. The postman who collects the letters also fixes the forecast cards in position, so that the morning predictions of weather become known throughout the city by about 1 p.m. of the date of issue.

THE *Mitteilungen aus den deutschen Schutzgebieten* contains a valuable contribution to our knowledge of the Harmattan winds in the form of three short papers by competent observers in Togoland, and a discussion of the material by Dr. von Danckelmann. The investigation leads to the conclusion that the Harmattan, strictly so called, is a strengthening of the general north to south movement of the atmosphere prevalent in the western Sudan between October and April, caused by special modifications in the distribution of pressure which are not yet fully explained. The excessive dryness of the air, and its dustiness, are due to the origin of the current in the regions north of the bend of the Niger; and it is shown that the wind may penetrate into coast districts normally exposed to the influence of the moist sea breeze. The characteristic low morning temperatures are probably due to excessive radiation, but the point requires further elucidation.

WE have received the seventh annual report of the Sonnblick Society, for the year 1898, containing the meteorological observations on the summit of the Sonnblick mountain, lat. 47° 3′ N., long. 12° 57′ E., altitude 10,191 feet, and also at two intermediate stations, respectively nearly 4000 and 3000 feet above the sea. The observations have been carried on with great care and regularity, and the observatory on the summit is now under the entire management of the Austrian Meteorological Society. The difficulty of carrying on the work of this important station may be gauged from the following results for the year. The mean annual temperature was 22°·3, the absolute maximum 46°·4, and the minimum minus 13°·7. Fog occurred on 250 days, and rain (or snow) on 200 days. The report also contains useful detailed information respecting the mineral products of the neighbourhood, and particulars relating to the high observatories in the Alps.

THE Central Physical Observatory of St. Petersburg has recently published its *Annals* for the year 1897, consisting of two large quarto volumes. The first part contains the meteorological and magnetic observations made at the stations of the First Order, and the extraordinary observations at stations of the Second and Third Orders; for several stations, observations are published for every hour. The second part contains the meteorological observations of the Second Order stations, arranged according to the international scheme, and gives the observations made three times a day, and results for eighty-two stations, and a *résumé* of the monthly and annual means for 661 stations. Each set of observations is preceded by a detailed introduction, giving particulars of the methods employed and of the instruments used. In accordance with the decision of the Meteorological Conference at Paris in 1896, a useful list is added of all the periodical publications appearing in Russia which contain meteorological observations. The Director of the Meteorological Service is General M. Rykatcheff, Member of the Imperial Academy of Sciences of St. Petersburg.

DR. KEILHACK contributes a short paper on the hydrography of north-western Germany to the *Verhandlungen* of the Berlin Geographical Society. The relation of the later glacial deposits to the existing valleys and lakes is discussed, and a map shows the supposed successive positions of the inland ice, and the courses of the longitudinal valleys associated with each phase of its movement.

WE have received No. 3 of the "Current Papers" published by Mr. H. C. Russell in the *Proceedings* of the Royal Society of New South Wales, along with which is a chart showing the tracks of floats between September 1896 and September 1898. The additional information confirms the result stated in the second paper, that the rate of drift increases with latitude south of 30° S. One float gave an average rate of 12·4 miles per day in latitude 47°·16 S.

CHARLES WACHSMUTH (of Burlington, Iowa), who died in 1896, had for forty years zealously studied the fossil Crinoidea of the older rocks of North America, being assisted during the latter half of the period by Mr. Frank Springer. The labours of the two on "The North American *Crinoidea camerata*" have been published in an important monograph containing 838 pp. and 83 plates; and this work has now been subjected to an elaborate criticism by Mr. F. A. Bather, of the British Museum (Natural History), who has reprinted his series of articles, which were published in the *Geological Magazine* (1898–99). These critical essays form an important contribution to the study of the Crinoidea, and they are appropriately accompanied by a portrait and brief biography of Wachsmuth.

MR. ARNOLD HAGUE, in his presidential address to the Geological Society of Washington (February 1899), took as his subject the "Early Tertiary Volcanoes of the Absaroka Range." This range extends along the east side of the Yellowstone Park, in the State of Wyoming, and several of the higher peaks and the long western spurs slope gradually towards the Park, and lie within its borders. The Absarokas present a high plateau, ranging from 10,000 to over 12,000 feet above sea-level, and composed of agglomerates, tuffs, and lava flows, based upon Archæan and Palæozoic rocks, and including masses of intrusive igneous rock. The volcanic materials constitute the bulk of the mountains, and they were ejected from numerous vents and fissures at several successive epochs, mainly in the following order: early acid breccia, early basic breccia, early basalt sheets,

late acid breccia, late basic breccia, and late basalt sheets. Evidence of the long duration of the period of volcanic activity is furnished by the remains of plants found at different horizons; over 150 species having been identified, many of them new to science. In one instance, a grand old tree, *Sequoia magnifica*, was found firmly imbedded in the early basic breccia.

IN NATURE for March 9 we gave a short account of the late Prof. Cope's researches on the Vertebrate remains from the Port Kennedy bone deposit in Pennsylvania. We have since received the detailed account of the excavations carried on in 1894-96 by Mr. Henry C. Mercer (*Journ. Acad. Nat. Sc.*, Philadelphia, vol. xi. part 2, April 1899). The results lead to the conclusion that the original configuration of the fissure in which the remains were obtained was that of a deep, well-like chasm opening vertically downward from the sloping surface of a hill, and that the animals stampeded by a flood had rushed to their destruction into the abyss. We have previously mentioned the principal fossil remains obtained. Of these, no less than 377 individuals and 66 species were recognised, of which latter 40 are extinct. No traces of man were discovered, and the general evidence favours the view that the fauna is of earlier date than that which witnessed the presence of man on the American continent.

A RECORD of the work accomplished in the chemical laboratory of the Austrian Geological Survey during the year 1898 is summarised in the Director's Annual Report (*Verhandlungen der k. k. geol. Reichsanstalt*, No. 1, 1899). In addition to the petrographical examination of many rock-specimens, the official work comprised the analysis of no less than 203 samples, such as coals, rocks, ores, and waters. Additional researches, carried out for scientific purposes, are also recorded. Many samples of the materials employed in the construction of the new Danube embankments were examined and reported upon by Dr. v. John, who also concluded the analyses of various Bohemian mineral waters. The results of this last work are published in the September number of the *Jahrbuch*, 1898. Of special economic value are Herr Aug. Rosiwal's experiments for ascertaining methods which shall furnish definite standards whereby all the factors of stability determining the technical utility of building stones may be accurately measured. Some interesting results attained in this connection have already appeared in the *Verhandlungen*, Nos. 5 and 6, 1898.

WE have recently received from the publishers parts 38-40 of Prof. Enrico Morselli's "Antropologia Generale," now in course of publication at Turin. As these fasciculi deal with the intricate problem of man's evolution from the lower animals, they are of more than ordinary interest. The author has done wisely in reproducing a large number of the phylogenetic trees published by modern zoologists, thus giving his readers an opportunity of seeing in what respects they agree or differ from one another. Manifestly, however, his sympathies are with Haeckel's tree of mammals, in which, as is well known, the marsupials form an early offshoot from the main stem. As regards the anthropoids themselves, the author adopts Schlosser's tree, in which a primitive gibbon (*Prothylobates*) is taken as a starting point, from which the gibbons rise as one branch, while *Dryopithecus* forms the main stem. This latter is continued directly upwards to give rise to the orang and chimpanzee, while on one side branches the gorilla, and on the other *Pithecanthropus* and *Homo*. The weak point of this is the wide separation of the chimpanzee and the gorilla. Apart from this, the gibbon-like character in the skull of *Pithecanthropus* (which can scarcely be regarded as generically distinct from *Homa*, unless mental characteristics be taken into account) affords considerable support to the general plan of the phylogeny.

TWO reprints from the *Botanical Gazette* have reached us, by Prof. C. J. Chamberlain and Prof. J. M. Coulter, both referring to the phenomena of fertilisation and embryology in the Coniferæ.

THAT patient observer, Mr. Thomas Meehan, continues, in the *Proceedings* of the Academy of Natural Sciences of Philadelphia, his contributions to the life-history of plants, mostly relating to the phenomena of fertilisation.

THE most recently published part of Engler's *Botanische Jahrbücher*, vol. xxvi. Heft 5, is chiefly occupied with the conclusion of Kränzlin's Orchidaceæ of Guatemala and adjacent countries, and a further instalment of the editor's monograph of the Araceæ. There are also revisions of the genera *Philodendron*, *Dieffenbachia*, and *Tropaeolum*.

FOR the past ten years experiments have been carried on, on an extended scale, to test the suitability of the soil and climate of Indiana for the production of beet-sugar. The results of these experiments are now published in *Bulletin* No. 68 of the Purdue University Experiment Station (Lafayette, Ind.). They show that, wherever the needful precautions have been observed, beets of satisfactory character have been produced in every section of the State, and that it is probable that Indiana can produce enough beets of satisfactory quality to furnish the raw material for a large number of factories.

THE third part of Drs. D. S. Jordan and B. W. Evermann's "The Fishes of North and Middle America," being a descriptive catalogue of the species of fish-like vertebrates found in the waters of North America, north of the Isthmus of Panama, has been issued by the Smithsonian Institution as *Bulletin* No. 47 of the U.S. National Museum.

IT is a little surprising that Wiedemann and Ebert's "Physikalisches Practikum," the fourth edition of which has just been published by Friedrich Vieweg and Son, Brunswick, has not been translated into English. The volume contains a well-arranged and complete course of laboratory work suitable for students who are already familiar with elementary physical operations. Physical-chemical experiments receive particular attention.

MR. C. BAKER has issued a new catalogue of microscopes and accessory apparatus. Many instruments for histological and bacteriological work are included in the catalogue, and outfits suitable for various technical purposes. It is evident from the catalogue that, apart from the medical practitioner, naturalist and amateur, the microscope is being more and more used in trade and professional work.

THIRTEEN important memoirs are published in the *Atti* of the Naples Academy of Physical and Mathematical Sciences (1899, ser. ii. vol. ix). Among the subjects dealt with are: remains of great Pleistocene lakes and rivers in southern Italy, with special reference to the geological conditions which produced such plains as the great Vallone di Diano (full descriptions, with maps, are given of the Agri, Mercure, and Noce); chemical analyses of the waters of the hot springs of Iscia; contribution to the biology of ferns; flora of the basin of the Liri; and fossil fishes of the Eocene chalk of Gassino, Piedmont. The remainder of the memoirs deal with mathematical and geometrical subjects.

WITHOUT disparaging the Smithsonian Institution in the slightest degree, it may be said that the most valuable part of the Annual Report is the appendix, which comprises a selection of interesting memoirs upon scientific subjects. The report for 1897, just distributed, contains no less than thirty-eight memoirs of this kind, dealing with the position and progress of various

branches of science. The memoirs are "not for the specialist, but interesting and popular expositions of what the specialist knows to be sound and opportune." A number of the memoirs are reprints of addresses and articles which have appeared in NATURE, some are original articles, and others are translations or reprints from contributions to various scientific publications. Almost every phase of scientific activity seems to be included among the papers, and many subjects are illustrated by fine half-tone pictures. The Smithsonian Institution does good service to science by the publication of these sound and instructive surveys of the state of natural knowledge.

THE additions to the Zoological Society's Gardens during the past week include a Smooth-headed Capuchin (*Cebus monachus*) from South-east Brazil, presented by Mr. Herbert Gibson; a Palm Squirrel (*Sciurus palmarum*) from India, presented by Miss Aggie O'Connor; a Kinkajou (*Cercoleptes caudivolvulus*, ♀) from South America, presented by Mr. J. J. Quelch; a Mexican Guan (*Ortalis vetula*) from Cartagena, Colombia, presented by Captain W. H. Milner; a Martinique Gallinule (*Ionornis martinicus*), captured at sea, presented by Mr. H. O. Milner; a Leith's Tortoise (*Testudo leithi*) from Egypt, presented by Mr. S. S. Flower; a Black-tailed Wallaby (*Macropus ualabatus*, ♀) from New South Wales, three Rabbit-eared Bandicoots (*Peragale lagotis*, 3 ♂), two Spotted Bower Birds (*Chlamydodera maculata*) from Australia, two Westermann's Cassowaries (*Casuarius westermanni*) from New Guinea, a White-throated Monitor (*Varanus albigularis*) from South Africa, two Starred Tortoises (*Testudo elegans*) from India, four Elephantine Tortoises (*Testudo elephantina*) from the Aldabra Islands, deposited.

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES IN JUNE:—

June 1. 14h. 53m. to 15h. 40m. Occultation of the star 19 Piscium (mag. 5·2) by the moon.
7. 16h. 43m. to 17h. 53m. Partial eclipse of the sun visible at Greenwich. The greatest phase occurs at 17h. 17m., at which time 0·188 (nearly one-fifth) of the sun's disc will be obscured. At places N.W. of Greenwich the eclipse will be of somewhat greater magnitude.
11. 2h. Saturn in opposition to the sun.
15. Illuminated portion of the disc of Venus 0·904, of Mars 0·913.
20. 11h. 30m. Minimum of the variable star Algol (β Persei).
22. 7h. Saturn in conjunction with the moon.
23. 8h. 19m. Minimum of the variable star Algol (β Persei).
23. 10h. 34m. to 11h. 41m. Occultation of B.A.C. 6343 (mag. 5·8) by the moon.
24. 13h. 17m. to 14h. 12m. Occultation of *f* Sagittarii (mag. 5·1) by the moon.
25. 10h. 45m. to 11h. 48m. Occultation of B.A.C. 7145 (mag. 6·0) by the moon.
27. 12h. 59m. to 14h. 2m. Occultation of κ Aquarii (mag. 5·5) by the moon.
28. 11h. 22m. to 12h. 10m. Occultation of κ Piscium (mag. 5) by the moon.

COMET 1899 *a* (SWIFT).—

Ephemeris for 12h. Berlin Mean Time.

1899.	R.A. h. m. s.	Decl. ° ′	Br.
June 1	17 58 35	+ 56 13·1	
2	17 36 8	55 13·8	1·34
3	17 15 28	54 1·7	
4	16 56 46	52 39·2	1·18
5	16 39 54	51 9·5	
6	16 24 46	49 34·6	1·03
7	16 11 13	47 57·1	
8	15 59 12	+ 46 18·1	0·88

The comet is now passing with a greatly accelerated motion in a south-westerly direction. During the week it will traverse the constellations Draco and Herculis; on the 1st it passes close to ξ Draconis, while on the 8th it will be a little more than 1° north-west of φ Herculis. In *Ast. Nach.*, No. 3567, Prof. A. A. Nijland, of Utrecht, says that, viewed with a finder of 74 mm. aperture on May 5, the comet appeared about 5·5 mag., having a tail about 1°·5 in length.

TEMPEL'S COMET (1873 II.).—

Ephemeris for 12h. Paris Mean Time.

1899.	R.A. h. m. s.	Decl. ° ′ ″	Br.
June 1	19 34 17·4	− 3 52 50	1·121
3	37 19·0	3 58 10	
5	40 18·6	4 5 17	1·271
7	43 16·1	4 14 21	
9	46 11·7	4 25 27	1·439
11	49 5·4	4 38 45	
13	51 57·2	4 54 22	1·625
15	19 54 47·2	− 5 12 25	

As the comet approaches perihelion (June 18) it is rapidly becoming brighter, and should now be visible with small instruments. It reached its highest northerly declination on May 26, and is now travelling to the south-east through Aquila into the head of Capricornus.

NEW VARIABLE OF ALGOL TYPE.—M. Ceraski, of the Moscow Observatory, writes in *Astr. Nach.* (Bd. 149, No. 3567), announcing the discovery of a new variable of the Algol type in the constellation Cygnus. The star was detected by the varying intensity of its image on photographs taken during May and July 1898. Its position is

B.D. + 45°·3062. 1855. R.A. = 20h. 2m. 24·5s.
Decl. = + 45° 52·9.

Its magnitude is usually about 8·6, but on May 8 this year it was observed to be at minimum about 13·4h., Moscow mean time, its light then being nearly two magnitudes fainter than the normal.

VARIABLE RADIAL VELOCITY OF ζ GEMINORUM.—Prof. W. W. Campbell has called attention to this star in a paper communicated to the *Astrophysical Journal* (vol. ix. p. 86, 1899), where he gives the results of measures on three photographs. In *Astr. Nach.* (Bd. 149, No. 3565), M. A. Belopolsky gives the results of an extensive series of measures he has been able to obtain with the 30-inch refractor and two-prism spectrograph of the Pulkowa Observatory. The individual observations are given, and also a summation in the form of a table showing the radial velocities at stated intervals from minimum. This latter is as follows:—

Interval from minimum	Velocity	Interval from minimum	Velocity
d. h.		d. h.	
0 2	+ 4·76 g.M.	5 1	− 2 70 g.M.
0 12	+ 2·86	6 19	+ 1·96
1 12	+ 0·71	8 1	+ 3·00
2 1	+ 0·68	8 5	+ 3·02
3 1	+ 0 04	9 6	+ 5·06
3 12	+ 0·50	9 15	+ 4·41
4 1	− 0·40	10 2	+ 4·11
4 13	+ 0·34		

Prof. Campbell's maximum and minimum values were 20 kil. and 6 kil. respectively.

THE RESULTS OF THE "VALDIVIA" EXPEDITION.

DR. SUPAN gives the following summary (based on the official report in the *Reichs-Anzeiger* of March 25) of the chief results of the German expedition in the *Valdivia* to Antarctic waters, in the April number of *Petermann's Mitteilungen*.

(1) Rediscovery and determination of position of Bouvet Island, first discovered by Bouvet in 1739, and sighted since then only by Lindsay (1808) and Norris (1825). The island, which lies in lat. 54° 26′ S., long. 3° 24′ E., and is 9½ kilo-